Classification Exam Answer Key

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Bio 307

1. *b.* 
   1. Indirectly applies to objective number one.
   2. Bloom’s Taxonomy level: Knowledge
2. *The benefits to binomial nomenclature include: universality (Latin is weird for everyone), not overly complex, each species has a distinct name, locality of the genus already implies some shared characteristics with related members, and overall reduces confusion compared to previous systems. Students must touch on the universality at least.* 
   1. Objective #2
   2. Bloom’s Taxonomy level: Comprehension
3. *c.*
   1. Objective #1
   2. Bloom’s Taxonomy: Application
4. *Species, genus, family, order, class, phylum, kingdom, domain*
   1. Objective #3
   2. Bloom’s Taxonomy: Knowledge
5. *Some potential components of the answer*

*Eukarya circle: Eukaryotes, can be multicellular, has a nuclear envelope and membrane enclosed organelles, includes animalia, fungi, plantae, and protista,   
Archaea circle: Do not cause disease, live in extreme circumstances, includes archaebacteria  
Bacteria circle: Can cause disease, peptidoglycan in the cell walls, includes Eubacteria  
Eukarya/Archaea: not killed by antibiotics, can have histones,   
Bacteria/Eukarya: can cause disease, have unbranched hydrocarbons  
Archaea/Bacteria: Prokaryotes, unicellular, circular chromosome*

*All: Heterotroph or autotroph, are forms of life, highly diverse*

* 1. Objective #6
  2. Bloom’s Taxonomy: Application

1. *Protista=E, Archaebacteria=A, Fungi=E, Animalia=E, Eubacteria=B, Plantae=E* 
   1. Objective #6&11
   2. Bloom’s Taxonomy: Analysis
2. *Some potential components of the answer*

*Fungi: networks of hyphae, made of chitin, sexual and asexual life cycles, decomposers, can produce antibiotics  
Plantae: non-motile, can photosynthesize, some have complex sexual structures, some have vascular tissue, alternation of generations,   
Protista: typically unicellular, can photosynthesize or be consumers, aquatic, cilia and flagella, often in colonies  
Animalia: multi-cellular, cells become specialized, includes us*

* 1. Objective #11
  2. Bloom’s Taxonomy: Analysis

1. *a.*
   1. Objective #5
   2. Bloom’s Taxonomy: Knowledge
2. *Good cladograms follow the rule of parsimony, that being that species are grouped based around a tree construction where the fewest changes happen between those organisms in order to fix them to that position. In other words the tree with the fewest evolutionary changes is probably the most correct.* 
   1. Objective #4
   2. Bloom’s Taxonomy: Comprehension
3. *Many cladograms had to revamp how they were structured as DNA evidence showed that many organisms were closely related genetically—scientists had more to use than observable characteristics.* 
   1. Objective #8
   2. Bloom’s Taxonomy: Comprehension
4. *d*.
   1. Objective #10
   2. Bloom’s Taxonomy: Application
5. *Organisms are grouped into different categories so that we can infer different characteristics on that organism based on where it is grouped. There are far too many organisms to attempt to memorize all of them; it’s far easier to know a few general things based on families and move from there. While these characteristics aren’t necessarily certain, they are typically correct.* 
   1. Objective #9
   2. Bloom’s Taxonomy: Evaluation
6. *Jaws: organisms could grasp and chew rather than passively take in nutrition—examples with include such organisms as sharks, humans, etc. Examples without include lancelets, sponges, etc.   
   Notochord: allowed for support along dorsal side of individual, further stabilization for muscle attachment—examples include fish and a number of chordates. Examples without include sponges, insects, etc.  
   Closed-circulatory system: allows for more efficient movement of blood and nutrients throughout the body—examples with include birds, mammals. Examples without include fish, amphibians, etc.  
   Vascular tissue: allows plants to transfer water and nutrients against gravity and to further reaches so that the plants could be terrestrial—examples with include angiosperms and gymnosperms. Examples without include bryophytes and ferns.* 
   1. Objective #12
   2. Bloom’s Taxonomy: Comprehension